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PRAXAIR, INC.
LAW DEPARTMENT - M1 557
39 OLD RIDGEBURY ROAD
DANBURY, CT 06810-5113

EXAMINER	
WARTALOWICZ, PAUL A	

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/671,555
Filing Date: September 29, 2003
Appellant(s): MARRELLA ET AL.

David M. Rosenblum
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 8/22/07 appealing from the Office action mailed 10/17/06.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

GB 2006814	Schunck	10-1977
4,193,776	Wasala et al.	03-1980

4,464,228	Roensch	08-1984
3,642,731	Tegge et al.	02-1972
4,846,240	Erickson	07-1989
4,377,066	Dickinson	03-1983
2003/0110693	Drnevich et al.	06-2003

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 2, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck (G.B. 2006814) in view of Wasala et al. (U.S. 4193776) and Roensch (U.S. 4464228).

Schunck teaches a process for recycling a process stream condensate from a steam reforming system that produces an uncontaminated superheated steam stream (steam generator 4 produces uncontaminated steam, page 1, lines 118-122) and at least one process condensate stream contaminated with products of a steam reformer of the steam reforming system (page 1, lines 120-124) comprising collecting condensate from the at least one process condensate stream and forming a contaminated condensate stream therefrom (page 1, lines 120-124), transferring heat from a first part of the uncontaminated superheated steam stream to the contaminated condensate stream in three stages in which the condensate is first heated at heat exchanger 16 (this constitutes pre-heating, page 2, lines 24-27), then heating in steam-heated circulation unit 11 (this constitutes a boiler stage, page 1, lines 125-129), then finally heating the condensate with heat-exchanger 17 before entering reactor 3 (this constitutes the final process steam super-heater stage, page 2, lines 31-35; page 1, lines 115-120) thereby to form an uncontaminated condensate stream (steam condensate flows from steam-heat circulation unit to degasser as steam condensate, page 2, lines 26-31), combining a second part of the uncontaminated super-heated steam stream with the contaminated superheated steam stream to form a combined superheated steam stream (heated condensate flowing from the molstener column 9 to heat-exchanger 17 and then to reactor 3 is combined with part of the uncontaminated steam before entering reactor 3, page 1, lines 115-120; page 2, lines 30-35), recycling the uncontaminated condensate stream to the steam reforming system as make up for the uncontaminated superheated steam stream (steam condensate leaving steam-

heated circulation unit 11 is fed to degasser 7 to be transformed to steam in steam generator 4, page 2, lines 29-31; page 1, lines 118-122). Schunck fails to teach wherein pressurizing the contaminated condensate stream and wherein using at least part of the combined superheated steam stream to form a hydrocarbon and steam containing process stream as a feed to the steam reformer and wherein collecting condensate from an external process condensate stream produced externally to the steam reformer and forming the contaminated condensate stream from the external process condensate stream and the at least one process condensate stream and wherein stripping dissolved gases out of the at least one process condensate stream in a stripping column and collecting the condensate as a column bottoms of the stripping column.

As to the limitation wherein pressurizing the contaminated condensate stream, Roensch teaches a process for stripping volatile contaminants from ammonina plant process condensate (col. 2, lines 43-46) wherein stripped condensate is pumped for the purpose of transferring the condensate to other operating units where high quality water is advantageous (col. 3, lines 5-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein stripped condensate is pumped in Schunck in order to transfer the condensate to other operating units where high quality water is advantageous (col. 3, lines 5-8) as taught by Roensch.

As to the limitation wherein collecting condensate from an external process condensate stream produced externally to the steam reformer and forming the

contaminated condensate stream from the external process condensate stream and the at least one process condensate stream, Wasala et al., however, teach a process for purification of process condensate (col. 1, lines 5-10) wherein process condensate is imported from a hydrogen or other synthesis gas plant (col. 2, lines 47-50) for the purpose of purifying the process condensate in a stripping tower (col. 3, lines 33-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein process condensate is imported from a hydrogen or other synthesis gas plant (col. 2, lines 47-50) in Schunck in order to purify the process condensate in a stripping tower (col. 3, lines 33-36) as taught by Wasala et al.

As to the limitation wherein using at least part of the combined superheated steam stream to form a hydrocarbon and steam containing process stream as a feed to the steam reformer, Schunck teaches that it is known to combine steam and a hydrocarbon stream to form a feed to a reactor (page 1, lines 81-85).

Therefore, it would be obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein using at least part of the combined superheated steam stream to form a hydrocarbon and steam containing process stream as a feed to the steam reformer by the reasoned explanation that it is known to combine steam with a hydrocarbon stream to form a feed to a reactor (page 1, lines 81-85) as taught by Schunck.

Because the feed to the reformer in the prior art of record is substantially similar to that of the feed to the reformer in the claimed invention, there is substantially no patentable difference between the prior art of record and the invention as claimed.

As to the limitation wherein stripping dissolved gases out of the at least one process condensate stream in a stripping column and collecting the condensate as a column bottoms of the stripping column, Roensch, however, teaches a process for stripping volatile contaminants from ammonina plant process condensate (col. 2, lines 43-46) wherein the stripping tower is equipped with a collection basin (col. 3, lines 5-7) for the purpose of pumping the stripped condensate to other operating units where high quality water is advantageous (col. 3, lines 5-8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the stripping tower is equipped with a collection basin (col. 3, lines 5-7) in Schunck in order to pump the stripped condensate to other operating units where high quality water is advantageous (col. 3, lines 5-8) as taught by Roensch.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck (G.B. 2006814) in view of Wasala et al. (U.S. 4193776) and Roensch (U.S. 4464228) and Tegge et al. (U.S. 3642731).

Schunck teach a process for recycling a process stream condensate as described above in claim 1. Schunck fails to teach wherein the process condensate is collected in a collection drum.

Tegge et al., however, teach a process for the production of polymers (col. 1, lines 30-35) wherein a drum includes a collection portion (col. 8, lines 9-11) for the purpose of collecting immiscible liquid to be withdrawn and pumped (col. 8, lines 10-14).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein a drum includes a collection portion (col. 8, lines 9-11) in Schunck in order to collect immiscible liquid to be withdrawn and pumped (col. 8, lines 10-14) as taught by Tegge et al.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck (G.B. 2006814) in view of Wasala et al. (U.S. 4193776) and Roensch (U.S. 4464228) and Erickson (U.S. 4846240).

Schunck teaches a process for recycling a process stream condensate as described above in claim 1. Schunck fails to teach wherein heat is transferred from the first part of the uncontaminated superheated steam stream to the contaminated condensate stream in a single plate and frame exchanger.

Erickson, however, teaches a process for concentrating aqueous solutions (col. 1, lines 5-7) wherein it is known to use a frame and plate heat exchanger (col. 3, lines 30-31) for the purpose of providing heat exchange between cycle fluids (col. 3, lines 24-26).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein it is known to use a frame and

plate heat exchanger (col. 3, lines 30-31) in Schunck in order to provide heat exchange between cycle fluids (col. 3, lines 24-26).

Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck (G.B. 2006814) in view of Wasala et al. (U.S. 4193776) and Roensch (U.S. 4464228) and Erickson (U.S. 4846240) and Dickinson (U.S. 4377066).

Schunck teaches a process for recycling a process stream condensate as described above in claim 1. Schunck fails to teach wherein a third part of the uncontaminated superheated steam stream is exported.

Dickinson, however, teach a process for utilization of heating values of carbonaceous fuels (col. 1, lines 7-10) wherein energy is recycled for the purpose of maximizing exportable heat in the form of super-heated steam (col. 23, lines 59-61).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein energy is recycled in Schunck in order to maximize exportable heat in the form of super-heated steam (col. 23, lines 59-61) as taught by Dickinson.

Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schunck (G.B. 2006814) in view of Wasala et al. (U.S. 4193776) and Roensch (U.S. 4464228) and Erickson (U.S. 4846240) and Drnevich et al. (U.S. 2003/0110693).

Schunck teaches a process for recycling a process stream condensate as described above in claim 1. Schunck fails to teach wherein a third part of the uncontaminated superheated steam stream is exported.

Drnevich et al. (U.S. 2003/0110693), however, teach a process for a steam methane reformer (paragraph 0047, lines 1-3) wherein it is known to export steam from a steam methane reformer system (paragraph 0049, lines 3-6).
Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein it is known to export steam from a steam methane reformer system (paragraph 0049, lines 3-6) in Schunck as disclosed in the similar process of methane reforming as taught by Drnevich et al.

(10) Response to Argument

Applicant argues that in place of required analysis, the Examiner concludes without any evidence that the claims are obvious and that the Examiner has presented no evidence that all elements of the claims are found or suggested in the prior art and that the Examiner never adduces the remaining elements of the claims and does not present a case of obviousness to which the Applicants can respond.

However, the recitation of the Office Action referred to by applicant is the response to arguments section. Specifically the applicant argued that Schunck did not teach a "combined superheated steam stream that is ever combined with the hydrocarbon containing stream given that the second uncontaminated superheated steam stream..." In the section of the Office Action pointed out by applicant, the

argument by applicant is rebutted. Applicant mischaracterizes this section as the basis for the 35 U.S.C. 103 rejections wherein the remaining limitations are addressed.

It is unclear how applicant cannot respond to these comments or the rejections made under 35 U.S.C. 103.

Applicants additionally argue that Schunck is mentioned in the "Background" section of the instant specification and that the it is specifically stated that the present invention provides a method that inherently involves less expensive modifications to produce a feed to a reactor in that it does not require the use of contacting columns.

However, it is unclear how this argument lends a patentable distinction between the instantly claimed invention and Schunck. The limitation of the absence of contacting columns is a limitation not claimed. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., the absence of contacting columns) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant argues that Schunck does not teach superheating the resultant pressurized stream through heat transfer from a first part of the uncontaminated superheated steam stream to form a contaminated superheated steam stream. Additionally, applicant argues that the lack of such a teaching supports Examiner's admission that there exists no use of at least "part of the combined superheated steam

stream" because there is no contaminated superheated steam stream produced in Schunck that could be used to form a combined superheated steam stream in the first instance.

However, as explained in the rejection, it does not appear that the absence of a singular contaminated steam stream shows nonobviousness of the instant claims. The instant claims recite that a superheated contaminated steam stream is combined with a superheated uncontaminated steam stream to form a combined superheated steam stream. Schunck teaches that a cominated stream is combined with a superheated uncominated steam stream to form a combined superheated steam stream. Applicant contends that this instant limitation is nonobvious over Schunck for this reason. However, it does not appear that combining the superheated contaminated steam stream with the hydrocarbon containing streambefore combination with superheated uncontaminated steam stream in lieu of superheating the contaminated stream with the superheated uncontaminated steam stream initially before combination with the hydrocarbon containing stream would be outside the realm of one of ordinary skill in the art.

Applicant argues that the pressurizing of the contaminated condensate stream and the combining of the combined superheated steam stream with a hydrocarbon containing stream is not supplied by either the Wasala and Roench references.

However, as stated in the rejection, Roensch teaches a process for stripping volatile contaminants from ammonina plant process condensate (col. 2, lines 43-46)

wherein stripped condensate is pumped for the purpose of transferring the condensate to other operating units where high quality water is advantageous (col. 3, lines 5-8).

Applicant argues that the teaching in Roensch is not suggestive of pressurizing a contaminated stream.

However, this teaching provides motivation for pressurizing the condensate stream because it is well known to pressurize flows to transport them over a distance, therefore this teaching is applicable to the condensate stream of the instant claim and one of ordinary skill in the art would recognize this.

Applicant argues that Wasala teaches a process wherein process condensate is purified of contaminants by stripping the process condensate with process steam before it is used in a chemical process and that this is contrary to the claimed invention.

However, that Wasala treats the process condensate to some degree does not show that Wasala is contrary to the teachings of the instant invention. Wasala recites that volatile components of the condensate stream are removed before being transported for use in other processes. The purified process condensate is still a process condensate, minus volatile contaminations.

Applicant argues that claim 2 recites stripping dissolved gasses out of the at least one process condensate stream in a stripping column and collecting the condensate as a column bottoms of the stripping column and that Wasala teaches a process wherein process condensate is purified of contaminants by stripping the process condensate

with a process stream before it is used in a chemical reaction. Applicant additionally argues that Wasala is not even remotely suggestive of stripping dissolved gases out of a process condensate stream that is contaminated in the first instance.

However, it appears that Wasala teaches that volatile elements are stripped out of the condensate and transported to other applications. It is unclear how the process condensate is not contaminated in the first instance.

Applicant additionally argues that the contaminated process stream that is in fact utilized as a feed to the steam methane reformer rather than a purified stream in claim 1.

However, as stated above, it is unclear how a condensate stream with volatile elements removed does not meet the claimed limitations. This appears to be true because the limitations of claim 2 are not disclosed as occurring at a specific point in the process. Therefore, the stripping of dissolved gases is interpreted as occurring before pressurizing of the condensate stream (Fig. 3 & 4 of the instant specification).

Applicant argues that claim recites for heat to be transferred from the first part of the uncontaminated superheated steam stream to the contaminated condensate stream in a process steam superheater, a boiler, and a condensate preheater. Applicant then argues that Schunck teaches the contaminated condensate stream is preheated in two heat exchangers, 16 and 11, and thereafter is heated into steam within a heat exchanger 15 and that this teaching does not meet the terms of the invention in claim 4.

However, it appears that applicant is arguing that the apparatus limitations in claim 4 do not match up to the apparatus of Schunck. It appears that the apparatus of Schunck carries out a substantially similar process of heating the condensate stream to a superheated condensate steam stream. Therefore, it does not appear that the apparatus limitations lend a patentable distinction to the instantly claimed process claims.

Applicant argues that Wasala does not mention that the process condensate is imported from a hydrogen or synthesis gas plant, after having been heated and stripped within a stripping tower but that Wasala teaches that the process condensate is from a hydrogen or other synthesis gas plant, after having been heated and stripped within a stripping tower.

However, it appears that Wasala teaches that volatile elements are stripped out of the condensate and transported to other applications. It is unclear how the process condensate is not contaminated in the first instance.

Applicant additionally argues that Wasala does not teach a combination of two sources of the process stream as recited in claim 8.

However, Wasala is relied upon to teach that it is obvious to use external condensate in Schunck. One of ordinary skill in the art reading the combination of Wasala and Schunck would recognize that adding the external condensate of Wasala to Schunck would result in the formation of a condensate stream combined with an external condensate stream and render the instant limitation obvious. In response to

applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that despite Tegge teaching the limitation of using a drum for collection purposes, this mere feature does not render Applicant's invention as recited in claim 3 unpatentable with respect to the other limitations.

However, Tegge is only relied upon to teach the limitation of using a drum for collection purposes. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant argues that while Erickson mentions that plate and frame heat exchangers may be used for such purposes as compressing steam or other vapor in which low pressure steam is adsorbed in an aqueous absorbent solution to release heat, Erickson does not teach the heat exchange process contemplated in claim 5 and therefore the Examiner is using hindsight rejection and picking and choosing features found in the prior art in an attempt to meet terms of applicant's invention.

However, applicant admits that the frame and plate heat exchanger in Erickson is used to compress steam or other vapor. This appears to be what is occurring in applicant's instant claims. While Erickson does not specifically teach that the heat exchange is between a contaminated condensate stream and an uncontaminated superheated steam stream, one of ordinary skill in the art would be motivated to use the apparatus of Erickson in Schunck to provide for heat exchange between cycle fluids. This is not hindsight rejection.

Additionally, the apparatus limitations do not appear to provide a patentable difference to the currently claimed process claims.

Applicant argues that while Dickinson shows the production of superheated steam for export, it does not disclose that or suggest a third part of the uncontaminated superheated steam stream is to be exported, the first and second part having been used to form a hydrocarbon and steam feed to a reformer.

However, Dickinson does teach, as applicant admits, the production of superheated steam for export. One of ordinary skill in the art reading the combination of Dickinson and Schunck would recognize that exporting steam from the process of Schunck would result in the exportation of a third part of uncontaminated steam as disclosed by the applicant. Additionally, it is unclear how which part of the original uncontaminated steam stream lends a patentable distinction to the instantly claimed invention.

Applicant argues that while Drnevich shows the production of superheated steam for export, it does not disclose that or suggest a third part of the uncontaminated superheated steam stream is to be exported, the first and second part having been used to form a hydrocarbon and steam feed to a reformer.

However, Drnevich does teach, as applicant admits, the production of superheated steam for export. One of ordinary skill in the art reading the combination of Drnevich and Schunck would recognize that exporting steam from the process of Schunck would result in the exportation of a third part of uncontaminated steam as disclosed by the applicant. Additionally, it is unclear how which part of the original uncontaminated steam stream lends a patentable distinction to the instantly claimed invention.

(11) Related Proceeding(s) Appendix

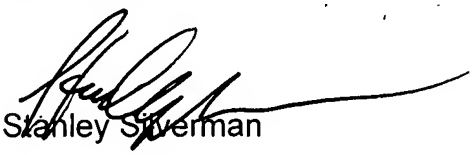
No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Paul Wartalowicz

Conferees:



Stanley Silverman

Kathryn Gorgos